

FROLOV, A. I.

PHASE X

TREASURE ISLAND BIBLIOGRAPHICAL REPORT

AID 730 - X

BOOK

Call No.: AF666889

Authors: FROLOV, A. I., and RYZHINSKIY, D. A.

Full Title: SCIENCE OF AVIATION MATERIALS

Transliterated Title: Aviatsionnoye materialovedeniye

PUBLISHING DATA

Originating Agency: None

Publishing House: Military Publishing House of the Ministry of Defense

Date: 1954 No. of pp.: 288 No. of copies: Not given

Editorial Staff: None

PURPOSE AND EVALUATION: This text for preparatory aviation engineering schools is a good up-to-date elementary textbook on aviation materials. It contains basic data on the composition and properties of a number of materials. Its value seems to be principally instructional.

TEXT DATA

Coverage: The author gives basic information on physical, chemical, mechanical and technological properties of aviation metals and alloys. He describes characteristics of carbon steel and special steels, heat-resisting materials, and also of alloys and non-ferrous metals. In a special chapter he describes the corrosion of metals and gives methods of prevention. He gives also basic information about non-metallic materials used in aviation such as: plastics, paints, varnishes, textiles, resins, heat and electrical insulators, and packing materials. The author gives the trade marks and compositions of various aviation

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. Aviatsionnoye materialovedeniye

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materials. He describes the conditions of operation of engine and aircraft parts. A number of scientists, living or dead, are mentioned.

Table of Contents

Pages

Chapter I. General Properties of Materials

13-59

Basic groups of aviation materials; requirements on aviation materials; physical and chemical properties of metals; conception of basic aspects of deformations and stresses; basic mechanical properties of metals and alloys; tensile testing; hardness of metals and basic methods of its determination of toughness; fatigue of metals and the determination of the limit of endurance; testing at high temperatures; technological properties of metals.

Chapter II. Metallography and the Heat Treatment of Steel

60-107

Composition of metals and alloys, crystallography; recrystallization, concept of allotropic modification of iron; metallographical methods; concepts of alloys; diagram of the composition of the first order; structure of steel-carbon alloys; Chernov's diagram (structure of the composition of steel-carbon alloys); heat treatment of steel; special methods of heat treatment of steel; thermo-chemical treatment of steel.

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108-134

Chapter III. Iron-Carbon Alloys

Carbon steels; characteristics of construction and tool carbon steels; general information on special steels; characteristics of basic kinds of alloyed steels used in the construction of aviation engines; alloyed steels used in aircraft construction; gray iron.

Chapter IV. Heating-Resisting Alloys

Conditions of operation of basic components of a jet engine; requirements on materials for the construction of basic components of a jet engine; conception of heat resistance and means of increasing it; means of increasing heat stability of metals and alloys; characteristic of basic groups of heat-resisting stable alloys.

Chapter V. Non-ferrous Metals and Alloys

Basic information; aluminum, its properties, trade marks and uses; high strength aluminum alloys, duraluminum and V95; heat treatment of duraluminum; AMts and AMg alloys for deep stamping; aluminum alloys for forging and stamping; aluminum alloys for casting; magnesium and its alloys; brass; bronzes.

Chapter VI. Corrosion of metals and alloys and methods of prevention

General information on corrosion; electrochemical corrosion;

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Chapter XI. Materials for Electrical Insulation
General information; characteristics of general aspects
of dielectrics used in the electrical and radio equipment
of an aircraft.

Pages
271-276

Chapter XII. Heat Insulation and Tightening Materials
Heat and acoustic insulation materials; packing materials.

277-285

Bibliography

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No. of References: Russian 17 1946 - 1953

Facilities: None

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L 24434-65

ACCESSION NR: AR4039991

simple dependence: $\Delta g_{xy} = a - b' \Delta g_z + c g_z^2$. Solution of the equations by the least squares method leads to the conclusion that the squared term can be neglected and the following simpler dependence can be used for the horizontal correction: $\Delta g_{xy} = a + b' \Delta g_z$ or $\Delta g_{xyz} = a + b \Delta g_z$. As a result of analysis of observational data from the research vessel "Vityaz'" (on the 27th voyage) and the diesel-electric "Ob'" (on the 2nd, 3rd, 5th and 6th voyages) it was possible to obtain the values of the parameters a , b' and $b = 1 + b'$ and also their mean square errors (E_a and E_b). The values of the latter characterize the degree of reliability of the dependence used. Using the mean weighted values of the parameters (p) for the diesel-electric "Ob'", the author gives the following formulas, making it possible to estimate the corrections: $\Delta g_{xy} = -3.3 \Delta g_z - 8$ and $\Delta g_{xyz} = (1 - 3.3/P) \Delta g_z - 8$, where P is the weighted displacement of the vessel (in thousands of tons). These formulas were derived for $\Delta g_z > 10-20$ mgal; the values Δg_z and Δg_{xy} were determined in 10-mgal intervals. Strictly speaking, the determined relationships between the horizontal component and vertical component and their ratio and the weighted displacement of the vessel hold true only for certain arrangements of the instruments relative to the principal axes of the vessel. An accompanying graph shows the dependence of the

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coefficient B' on the weighted displacement of the vessel.
V. Samarin

ASSOCIATION: 'Gosudarstvennyy astronomicheskiy institut im. P. K. Shternberga
(State Astronomical Institute)

SUB CODE: ES.

ENCL: 00

Card 3/3

L 15031-65 EWT(1)/EWG(v) Po-4/Pe-5/Pg-4/Pq-4 AFETR GW

ACCESSION NR: AP4049239

S/0049/64/000/010/1449/1461

AUTHOR: Frolov, A. I.

TITLE: Gravity field and some features of the structure of the earth's crust in Antarctica

SOURCE: AN SSSR. Izvestiya. Seriya geofizicheskaya, no. 10, 1964, 1449-1461

TOPIC TAGS: gravity field, gravimetry, earth crust, Mohorovicic discontinuity, Bouguer anomaly, Faye anomaly, isostatic anomaly, Antarctica

ABSTRACT: This paper reviews previously published results of investigations of the deep structure and isostatic state of the earth's crust in Antarctica. Empirical formulas are proposed for computing the depth of the Mohorovicic discontinuity in Antarctica using Bouguer gravity anomalies and the mean elevations of sectors with a determined gravitational characteristic. Diagrams and maps of the subglacial relief, deep structure of the crust, isostatic anomalies and regional Faye anomalies are presented, representing the generalization of investigations of recent years by Soviet and foreign authors. Orig. art. has: 9 formulas and 6 figures.

ASSOCIATION: Gosudarstvennyy astronomicheskiy institut imeni P. K. Shternberga
(State Astronomical Institute)

Card 1/2

L 15031-65
ACCESSION NR: AP4049239

SUBMITTED: 25Jul63

ENCL: 00

SUB CODE: ES

NO REF SOV: 013

OTHER: 005

Card 2/2

L 6866-65 EWT(1)/EWG(v) Po-4/Pe-5/Pq-4/Pg-4 GW

ACCESSION NR: AR 4044262

S/0169/64/000/005/G022/G022

SOURCE: Ref. zh. Geofizika, Abs. 5G114

58

56

AUTHOR: Frolov, A. I.

TITLE: Gravimetric operations of the state astronomical institute im. P. K. Shternberg during the fifth soviet antarctic expedition of 1959 - 1960

CITED SOURCE: Sb. Morsk. gravimetr. issledovaniya. Vy*p. 2. M., Mosk. : un-t, 1963, 19-34

TOPIC TAGS: gravimetric operation, marine gravimetric investigation, antarctic expedition, Bouquet anomaly, under ice relief, floating glacier

TRANSLATION: The researchers of the gravimetry section of the State Astronomical Institute im P. K. Shternberg (SAI) of Moscow State University accompanied the Fifth Soviet Antarctic Expedition. This section determined 120 gravimetric points, located for the most part in regions which have been little studied from the gravimetry point

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of view. To determine the force of gravity on water and land the following instruments were used: a pendulum device, design CAISH No. 101 with four pendulums and a No. 410 marine four-pendulum instrument; two GAK-3M quartz astaticized gravimeters; and marine gravimeter with an SZ-1 quartz extinguished system. In all, 136 gravity determinations were made at 120 points; of these, at 106 points the results were obtained with normal accuracy, at two points the errors exceeded ± 15 mgal, and at 12 points of the open course the errors were approximated at ± 10 mgal. The RMS error of determining gravitational acceleration at 28 points near Lazarev Station and at three points on the continent was ± 1.6 mgal. The error of Bouguet anomalies did not exceed ± 3 mgal. There was obtained complete identity of the results of estimating the pendulum and gravimetric marine determinations. Also investigated was the under-ice relief in the region of Lazarev Station; it was concluded that there is a trough beneath the glacier. The depth of this through was estimated at 750 m. Here the glacier is floating, and touches the shelf 10-12 km northeast and southeast of the station, where the depth is 150-200 m.

SUB CODE: ES

ENCL: 00

Card 2/2

BLAZHKIN, A.T., doktor tekhn. nauk. prof.; BESEKERSKIY, V.A.,
doktor tekhn. nauk, prof.; AZIMOVA, K.F., kand. tekhn.
nauk, dots.; LANSKOV, V.D., kand. tekhn. nauk, dots.;
FABRIKANT, Ye.A., kand. tekhn. nauk, dots.; GUL'DIN,
Yu.V., inzh. MEYERSON, I.G., dots.. kand. tekhn. nauk, dots.,
retsenzent. FROLOV, B.K., red. . .

[General electrical engineering] Obshchaya elektrotekhnika.
Moskva, Energiia, 1964. 655 p. (MIRA 17:12)

1. Prepodavatel' Leningradskogo mekhanicheskogo instituta
(for Blazhkin, Besekerskiy, Azimova, Lanskov, Fabrikant,
Gul'din).

KUDRYAVTSEV, V.I., inzh.; KEYMAKH, R.Ya., inzh.; KATSENELENOGEN, E.V., inzh.;
FROLOV, A.K., inzh.

Automatic devices used in the measuring line for determining sugar
content in beets. Mekh.i avtom.proizv. 18 no.3:35-37 Mr '64.
(MIRA 17:4)

FROLOV, A. M.

Measures to insure the stability of earthworks and constructions; textbook for higher educational institutions of railroad engineering. Moskva, Gos. transp. zhel-dor. izd-vo, 1949-54. 2v. (50-22154 rev)

TA7715.F7

FROLOV, A.M.

FROLOV, A.M., zasluzhennyy deyatel' nauki i tekhniki; RAK, S.M., kandidat tekhnicheskikh nauk, redaktor; KHITROV, P.A., tekhnicheskiiy redaktor.

[Methods of guaranteeing the stability of ground earthwork] Mery obespecheniia ustoichivosti zemlianykh mass i sooruzhenii. Moskva, Gos. transportnoe zheleznodorozhnoe izd-vo. Vol.2. 1954. 319 p.

1. Deystvitel'nyy chlen Akademii nauk USSR (for Frolov)
(Railroads--Earthwork)(Soil stability)

FROLOV, Aleksandr Matveyevich; PODVYAZKIN, Konstantin Alekseyevich, kandidat
tekhnicheskikh nauk; RAK, S.M., kandidat tekhnicheskikh nauk, redak-
tor; STIKHNO, T.V., tekhnicheskiy redaktor;

[Protection of river banks and slopes] Ukreplenie rechnykh beregov
i zemlianykh otkosov. Moskva, Gos.transp.zhel-dor. izd-vo, 1957.
86 p. (MLRA 10:7)

1. Deystvitel'nyy chlen Akademii nauk USSR (for Frolov)
(Embankments) (Shore protection)

31974
S/081/61/000/023/044/061
B138/B101

5.3300

AUTHORS: Kozlova, L. Ye., Stasova, O. F., Frolov, A. M.
TITLE: Group chemical composition of petroleums of the West Siberian
Lowlands
PERIODICAL: Referativnyy zhurnal. Khimiya, no. 23, 1961, 447, abstract
23M60 (Tr. Sibirsk. n.-i. in-ta geol. geofiz. i mineral'n.
syr'ya, no. 17, 1961, 192 - 201)

TEXT: The results are given, of the analysis of petroleums from wells 1-R and 5-R of the Nazina area and 2-R, 6-R and 7-R of the Shaim area, and also from exploratory wells in the Novyy Vasyugan, and Malyy Atlym regions. The lightest petroleum is that from well 7-R in the Shaim field (sp. wt. 0.8374, viscosity 4.65 centist. at 50°C), while the heaviest comes from 5-R in the Nazina area (sp. wt. 0.8912, viscosity 10.67 centist. at 50°C). Tar, by the sulphuric acid method, varies between 13.0 and 28.0%, asphaltenes between 0.29 and 0.74%. Sulphur content is low, 0.26 - 0.46%. Fractions obtained up to 500°C are given, together with the analyses of these cuts. The petroleums were found to contain quite a lot of paraffins, and belong

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to the methane-naphthenic-aromatic group. They differ in chemical composition and, apparently, also in genesis, from the two other petroleums of the same region which have already been investigated (4-R of the Berezovo and 1-R of the Kolpashevo areas). In composition the mezozoic petroleums obtained in Western Siberia are very similar to the upper Paleozoic ones of the Second Baku. [Abstracter's note: Complete translation.] ✓

Card 2/2

11089-62
ACC-NR: AP6022417 (N) SOURCE CODE: UR/0229/66/000/002/0007/0009

AUTHOR: Frolov, A. M.

ORG: None

TITLE: Determining the wave loads on the connecting bridge of a catamaran

SOURCE: Sudostroyeniye, no. 2, 1966, 7-9

TOPIC TAGS: marine engineering, shipbuilding engineering, wave mechanics, stress analysis

ABSTRACT: The author considers the following two cases which result in maximum strain on the connecting bridge of a catamaran located at an angle to regular waves: 1. one hull with the bow on the crest of a wave and the stern in a trough while the other hull is in the opposite position, i. e. the bow in a trough and the stern on a crest; 2. one hull with the midsection on a crest while the end sections are in troughs and the other hull has the midsection in a trough while the end sections are on crests. In the first case the differentiating moments reach their highest value while banking moments reach values close to maximum. Bending moments of opposite signs reach their highest values in the second case while twisting moments come close to maximum. Approximate formulas are derived for the wave loads on the connecting bridge with graphs which give an extremely simple method for practical calculations. This is convenient in initial design stages where basic elements of the ship may be changed and forces must be recalculated. Orig. art. has: 4 figures, 22 formulas.

SUB CODE: 13/ SUBM DATE: None

Card 1/1 vlr

UDC: 629.12.011.17;532.59

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B

FROLOV, A. M.

Primary isolation specimens for last a Mesozoic. 19
Doklady A. L. Lomov, and A. M. Frolov. Series Paleontol.
61, 835. 199-70(1056) (EE, translation). - See C. I. 9
B. M. R.

One 1951

19

FROLOV, A.M.

USSR/Nuclear Physics - Penetration of Charged and Neutral Particles Through Matter,
C-6

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 34095

Author: Elisseyev, G. P., Lyubimov, V. A., Frolov, A. M.

Institution: None

Title: Spectrum of Primary Ionization of Rapid Mu-Mesons

Original Periodical: Dokl. AN SSSR, 1956, 107, No 2, 233-235

Abstract: With the aid of 2 10-layer low-efficiency counters, filled with a mixture of neon and commercial propane, investigation was made of the primary ionization of mu-mesons with momenta in the range 2×10^8 -- 3.4×10^{10} ev/sec. A total of 1,779 mu-mesons were recorded. All particles were broken up by momenta into 10 groups, for each of which the average momentum and ionization were determined. The results of the measurements agree qualitatively with the theoretically predicted logarithmic increase in the primary ionization and confirm the saturation of the primary ionization for mu-mesons with momenta greater than 10^{10} ev/sec, due to the effect of polarization of the medium. The method of processing the experimental data on the primary ionization used by the authors is described.

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Frolov, A.M.

120-3-10/40

AUTHORS: Voronkov, V.P. and Frolov, A.M.

TITLE: Coincidence Circuit for Work with Small Amplitude Pulses.
(Skhema sovpadeniy dlya raboty s impul'sami maloy amplitudy)

PERIODICAL: Pribury i Tekhnika Eksperimenta, 1957, Nr 3, pp 40-42
(USSR)

ABSTRACT: The circuit (Fig.1) operates on the principle of different amplification of coincident and non-coincident pulses. Negative pulses from two input elements "transducers" are shaped by short-circuited cables l_1 (PK-50) and passed to the tubes $\Pi_1 \Pi_2$ and $\Pi_3 \Pi_4$. These stages produced two lengthened and inverted pulses; the positive swings are suppressed by the resistance r and 10 parallel-connected crystal diodes ДДГ-44. Normally, the pulses at the anodes of the tubes Π_1 and Π_2 , and also at the anodes of tubes $\Pi_3 \Pi_4$ must be of equal amplitude. The pulses from the tubes $\Pi_2 \Pi_4$ pass along the cables l_1 and l_2 (PK-50) to point A and also to points B and C. In the case of coincidence, the pulses at point A add together and pass through the detector to one of the inputs of the differential amplifier (Π_5 and Π_6). The

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Coincidence Circuit for Work with Small Amplitude Pulses.

larger of the pulses arriving at the points B and C is passed to point A but the detector to which the smaller pulse is applied is switched off by the larger pulse. The difference in amplitudes ΔU_{BX} at points B and A is amplified by the differential amplifier, i.e., at the anodes of Π_5 and Π_6 appear pulses of opposite polarities and with amplitude U_1 proportional to ΔU_{BX} ;

$$U_1 = K_1 \Delta U_{BX}$$

where K_1 is the gain of the differential amplifier to the difference. From the anodes of Π_5 and Π_6 the pulses pass to the input of a second differential amplifier (cathode and grid of Π_7). At the anode of Π_7 appears a pulse with an amplitude proportional to $K_1 \Delta U_{BX}$:

$$U_c = K_2 K_1 \Delta U_{BX} \text{ where } K_2 \text{ is the gain of the}$$

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Coincidence Circuit for Work with Small Amplitude Pulses.

second differential amplifier to the difference. When only one of the input elements operates, pulses of equal amplitude U_{BX} arrive at the input to the first differential amplifier. At the anodes of Π_5 and Π_6 appear pulses with amplitudes $K_3 U_{BX}$, where K_3 is the gain of the first differential amplifier when equal amplitude pulses are applied to each of its inputs. In this case, the pulse at the anode of Π_7 is determined by the unbalance between the branches of the second amplifier: $U_{HC} = K_4 \cdot K_3 U_{BX}$, where K_4 is the gain of the amplifier stage Π_7 to pulses applied simultaneously to the cathode and grid of the valve. $K_1 K_2$ is made very much greater than $K_3 K_4$, so $U_c \gg U_{HC}$, i.e., the pulse at the anode of Π_7 is many times greater at coincidence than when caused by a single input pulse. The pulse at the anode of Π_7 is lengthened, amplified, discriminated and registered. The threshold of the discriminator is set up so that non-coincident pulses are not registered. The

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Coincidence Circuit for Work with Small Amplitude Pulses.

selection coefficient α is defined as the ratio of the amplitude of a single input pulse to the amplitude of equal coincident pulses which give the same output voltage, i.e.:

$$\alpha = K_1 K_2 / K_3 K_4 .$$

In practice, for pulse durations $T \sim 5 \times 10^{-9}$ sec. $\alpha = 18$. The cables ℓ_1 and ℓ_2 had to be carefully matched into their load impedances. The pulses at the anodes of valves Π_1 and Π_2 , and Π_3 and Π_4 , were equalized by variable resistances in the anode circuits of Π_2 and Π_4 . The valves (6Ж1П) had to be carefully selected. Time resolutions up to $\tau \sim 5 \times 10^{-9}$ sec (Fig.2) for inputs down to ~ 0.03 V were obtained. There are 2 illustrations and no references.

SUBMITTED: March 13, 1956.

AVAILABLE: Library of Congress.

Card 4/4 1. Amplitude modulation 2. Coincidence circuits-Operation

FRCTOV, A.M., inst.

Method for approximate estimation of wave torque. Sedostroenie 31
n.5:24-26 M: 195. (MIRA 18:8)

GROMYKO, F.G., inzh.; FROLOV, A.M., inzh.

TUP-3,0 universal tractor trailer.. Trakt. i sel'khoz mash. 30 no.6:
32 Je '60. (MIRA 13:11)

1. Gomsel'mash.

(Tractors--Trailers)

AUTHOR: Frolov, A.N., Engineer

SOV/95-59-2-2/13

TITLE: Power Equipment for Main Gas Pipelines (Energeticheskoye kho-
zyaystvo magistral'nykh gazoprovodov)

PERIODICAL: Stroitel'stvo truboprovodov, 1959, ⁴Nr 2, pp 4-6 (USSR)

ABSTRACT: As basic equipment for large gas pipelines, gas engines driven by 1,000 hp compressors have been employed so far. However, increased capacity of gas pipelines made it necessary to increase also the capacity of the compressor units. Thus, in accordance with stipulations of the Glavgaz USSR, the Nevskiy zavod imeni Lenina (Nevskiy Plant imeni Lenin) has manufactured a centrifugal compressor with a capacity of 13 million cu m per 24 hours driven by a 4,000 kw gas turbine (type 280-11-2) or a 4,500 kw electric motor (type 280-11-1). Centrifugal compressors are equipped either with gas turbine drive or with electric motor drive. Though the latter works out cheaper in operating, preference is given to gas turbine drive which can be installed for less money. As far as electric motor drive is concerned, the existing system of revolution speed control by means of a series of mercury rectifiers offers no satisfactory solution. In areas far removed from any power systems

Card 1/2

small power plants operating on gas are set up with a capa-

FROLOV, A. N.

The standardization of thread gauges Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit, 1
lit-ry, 1950. 344 p. (51-3440)

TJ1340.F85

FROLOV, A.N.; DOSCHATOV, V.V.; SOKOLOVA, T.P., tekhnicheskiy redaktor.

[Standard dimensions for thread gauges; handbook] Ispolnitel'nye
razmery rez'bovykh kalibrov; spravochnik. Izd. 2-e, dop. Moskva,
Gos. nauchno-tekhn. izd-vo mashinostroit. i sudostroit. lit-ry,
1954. 439 p. (MLRA 7:11)

(Screw threads, Standard)

FROLOV, A. N. and V. V. DOSCHATOV.

Ispolnitelye razmery rez'bovykh kalibrov; spravochnik. Moskva, Mashgiz, 1950. 344 p. tables.

(Standard dimensions of thread gauges.)

DLC: TJ1340.F85

SO: Manufacturing and Mechanical Engineering in the Soviet Union,
Library of Congress, 1953

FROLOV, Aleksey Nikolayevich; RZHAVINSKIY, V.V., inzh., red.;
MODML', B.I., tekhn.red.

[Manual for the design of smooth and special calipers]
Rukovodstvo po raschetu gladkikh i spetsial'nykh
kalibrov. Moskva, Gos.nauchno-tekhn.isd-vo mashino-
stroit.lit-ry, 1959. 167 p. (MIRA 12:6)
(Calipers)

PROLOV, Aleksey Nikolayevich; DOSCHATOV, Vadim Vasil'yevich; NESTEROV, V.D., inzh., retsenzent; UVAROVA, A.F.; tekhn. red.; EL'KIND, V.D., tekhn. red.

[Control dimensions of thread gauges; reference book] Ispolnitel'-nye razmery rez'bovykh kalibrov; spravochnik. Izd.3., perer. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1961. 694 p.
(MIRA 14:9)

(Screw threads, Standard)

AKHMETOVA, R.S.; TORBEYEVA, D.R.; NEDOGREY, P.M.; LEKHTER, V.I.; FROLOV, A.P.

Improving the quality of highway asphalts obtained from
deasphaltization products. Khim.i tekhn.topl.i masel 8 no.2:20-23
F '63. (MIRA 16:10)

1. Bashkirskiy nauchno-issledovatel'skiy institut po pererabotke
nefti, Ufimskiy neftepererabatyvayushchiy zavod im. XXII s"yezda
Kommunisticheskoy partii Sovetskogo Soyuz.

FROLOV, A. P. (Moskva)

Slightly curved laminar flow of an ideal incompressible liquid.
Prikl. mat. i mekh. 28 no. 3:564-566 My-Je'64 (WIRA 1737)

1. FRICLOV, A. P. Krasnov, M. T.; Gubkin, S. I.; Zatulovskii, M. I.;
Moguchii, L. M.; Volkov, S. S.; Dasyatkov, M. D.
2. USSR (600)
3. Forge-Stamping Production Deformability of Magnesium Alloys,
Herald of Machine Construction No. 1, Jan 53
9. Compilation of Information of the USSR Machine and Machine Tools Industry
Contained in Soviet Publications. [REDACTED]

SOV/126-8-1-25/25

AUTHORS: Nemnonov, S.A., Oleynik, M.I. and Frolov, A.P.

TITLE: Contribution on a Method for X-ray Investigation of
Substances at High Pressure. 1. A Sectional X-Ray Tube ²¹

PERIODICAL: Fizika metallov i metallovedeniye, 1959, Vol 8, Nr 1,
pp 158-160 (USSR)

ABSTRACT: To reduce the long exposure times normally required for
X-ray investigations at high pressures, the Institut
fiziki metallov AN SSSR (Institute of Physics of Metals,
Ac.Sc., USSR) have developed and made an electronic
X-ray tube which can be taken apart. The tube (Fig 1)
is of simple construction and provides a very powerful
X-ray beam. The cathode is connected to a URS-70 X-ray
apparatus inter-locked with a TsVL-100 diffusion pump.
Suitable provision is made for avoiding ingress of oil
vapour. ✓

There are 3 figures and 1 Soviet reference.

ASSOCIATION: Institut fiziki metallov AN SSSR (Institute of Physics
of Metals, Ac.Sc., USSR)

SUBMITTED: December 4, 1958
Card 1/1

S/181/62/004/006/035/051
B108/B138

AUTHORS: Frolov, A. P., Vereshchagin, L. F., and Rodionov, K. P.

TITLE: Changes in the lattice parameters of pentaerythrite under pressures of up to 10,000 kg/cm²

PERIODICAL: Fizika tverdogo tela, v. 4, no. 6, 1962, 1608-1612

TEXT: A radiographic investigation of the lattice parameters a and c of pentaerythrite: $C(CH_2OH)_4$ was made in a beryllium high-pressure chamber.

At room temperature with pressures up to 10,000 kg/cm², pentaerythrite has a tetragonal crystal lattice with the parameters $a = 6.10 \text{ \AA}$ and $c = 8.73 \text{ \AA}$.

At a pressure of 9,000 kg/cm², $a = 5.99 \text{ \AA}$ and $c = 8.46 \text{ \AA}$. A discontinuity of a and c was observed between 4200 and 5600 kg/cm². The volume also changed suddenly by some 2.6%. These data are evidence of a phase transition in which, however, the crystal structure below and above the transition pressure remained the same. The behavior of pentaerythrite under pressure can be described by two empirical third-order equations of state:

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Changes in the lattice ...

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B108/B138

Before transition: $-\frac{\Delta V}{V_0} = 1.584 \cdot 10^{-5}P - 2.380 \cdot 10^{-9}P^2 + 0.370 \cdot 10^{-13}P^3;$

after transition: $-\frac{\Delta V}{V_0} = 2.404 \cdot 10^{-5}P - 3.848 \cdot 10^{-9}P^2 + 2.202 \cdot 10^{-13}P^3.$

Above the pressure of transition, compressibility increases with increasing pressure. There are 5 figures and 1 table.

ASSOCIATION: Institut fiziki metallov AN SSSR, Sverdlovsk (Institute of Physics of Metals AS USSR, Sverdlovsk). Institut fiziki vysokikh davleniy AN SSSR, Moskva (Institute of High-pressure Physics AS USSR, Moscow)

SUBMITTED: February 15, 1962

Card 2/2

FROLOV, A.P.; VERESHCHAGIN, L.F.; RODIONOV, K.P.; OLEYNIK, M.I.

Methods of X-ray investigation of materials under high pressures.
Part 2: Equipment for the preparation of X-ray pictures of
powders under pressure of up to 18,000 k/cm². Fiz. met. i
metalloved. 14 no.1:80-84 J1 '62. (MIRA 15:7)

1. Institut fiziki metallov AN SSSR i Institut fiziki vysokikh
davleniy AN SSSR.

(Metal powders)

(X rays—Diffraction)

FROLOV, A.P.

Machine for continuous grinding of ceramic paints. Stek. 1 ker.
19 no.7:39-41 J1 '62. (MIRA 15:7)
(Milling machinery) (Paint)

DAMASKIN, B.I., doktor tekhn. nauk, prof.; LEVIN, V.I., kand. tekhn. nauk,
starshiy prepodavatel'; FROLOV, A.P., inzh.

Loading of the shafts of a semiautomatic Class 27 sewing machine.
Nauch. trudy MTILP no.28:225-229 '63.

(MIRA 17:11)
1. Kafedra detaley mashin Moskovskogo tekhnologicheskogo instituta
legkoy promyshlennosti.

FROM V.P. (Mekha)

Problem of fluid jet flows along curvilinear surfaces. Izv. AN SSSR.
Mekh. no.5:164-166 S-0 '65.
(MIRA 18:10)

REEL #137

FREYDLIN, R. KH.
to

FROLOV, A.D.